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## Breeding records from the north-east Andean foothills of Ecuador

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Recent years have witnessed an increase in Ecuadorian ornithological publications (Freile 2005). From the early work of Marchant (1959, 1960) in the south-west, to more recent studies there and elsewhere in Ecuador (e.g. Marín & Carrión 1994, Best *et al.* 1996, Greeney *et al.* 2004, Greeney & Nunnery 2006), we are slowly expanding our knowledge of the breeding patterns of Ecuador's mainland avifauna. One area which seems particularly understudied ornithologically, especially with respect to natural histories, is the foothills of the east Andean slope. A few recent contributions have added to our knowledge for certain species (Gelis *et al.* 2006a,b, Greeney *et al.* 2006, Vaca *et al.* 2006), but we still lack sufficient data for proper analysis of seasonality. Here we begin to rectify this with observations on 35 species from the Andean foothills of prov. Napo, north-east Ecuador.

We made all observations opportunistically, during the course of other field work in 2002–06, and thus on their own they are not useful to assess seasonality. We hope, however, that these data will form the framework with which future workers may begin to compile breeding information for this area. We made observations at elevations around 1,150 m in the community-owned reserve of Mushullacta, adjacent to the Galeras sector of Sumaco-Napo Galeras National Park (NG), along the Tena–Loreto road at elevations of 1,000–1,400 m (LR), on and around the slopes of Volcán Sumaco at elevations of 1,650–1,750 m (SU), in the vicinity of Tena at 300–450 m (TE), at Hakuna Matata Lodge (800 m) near Archidona (HK), and in areas immediately surrounding Archidona (AR) at 600–750 m. Taxonomy follows Ridgely & Greenfield (2001).

### Species accounts

#### BLACKISH NIGHTJAR *Caprimulgus nigrescens*

On 29 March 2005, at 1,350 m on LR, we flushed an adult male off a single egg at 12.00 h. The egg was pale brown, heavily marked with dark brown and lavender blotches and black squiggles. It measured 25.9 by 20.1 mm and weighed 5.654 g.

Eight days later, at 17.15 h, the egg weighed 5.375 g. On 10 April there was no sign of the adult or egg. On 5 March 2006 we discovered two adults roosting at the same location at 16.30 h. Breeding accounts from several parts of the species' range have been published (Beebe *et al.* 1917, Haverschmidt 1968, Cleere & Ingels 2002).

### **GREY-BREASTED SABREWING *Campylopterus largipennis***

On 29 November 2001, on the LR at *c.*1,100 m, we found a nest with two partially incubated eggs, from which we flushed an adult female. Both eggs were immaculate white and they measured 15.8 by 10.7 and 15.6 by 10.4 mm. The nest was a neat cup attached at the side to the thin horizontal branch of a small Melastomataceae sapling. The nest was 1.3 m above a small stream and appeared to have been constructed on an older nest. It consisted mostly of moss and soft pale brown 'seed' down (especially in the inner parts), with an outer decoration of lichens, bound together and attached to the branch and old nest with copious spider webs. It measured 7 cm wide by 5 cm tall outside, with an inner cup 4 cm in diameter and 3.5 cm deep. Previously described from Brazil (Ruschi 1973 *in* Hilty & Brown 1986), the nesting of this Amazonian hummingbird is still poorly known.

### **SPOTTED BARBTAIL *Premnoplex brunnescens***

On 3 December 2002, at 1,700 m at SU, we discovered a nest with two partially developed eggs. It was attached by the back side to a mossy rock wall, 80 cm from a small waterfall and 1.4 m above a small stream. Two days later we found a second nest, also with two partially developed eggs, suspended by several thin vines only 80 cm above a small stream.

On 30 March 2005, at NG, we discovered a third nest with two well-feathered nestlings, seemingly ready to fledge. The next day the nest was empty and undisturbed, and we presume both had fledged. This nest was 1.1 m up, only 30 cm from a small stream. It was attached at the top to a rock ledge. A great deal of faecal matter had accumulated on the rock just below the nest. On 31 March we found a fourth nest with two eggs. This nest was 1 m above a small stream, attached by the back side to a rock face. On 1 April, at the same location we found a fifth nest with a single nestling, whose primary pin feathers had broken their sheaths *c.*2 days earlier. This nest was built into a large clump of epiphytes 1.7 m above a small stream. Its form was completely obscured and only the entrance was visible. Immediately adjacent to it, sharing a wall, was a second, empty but intact nest. Directly below was a large boulder emerging from the water on which had accumulated a large number of faecal sacs. While we handled the nestling it produced a faecal sac containing remnants of a snail shell. A sixth nest, with two partially developed eggs, was found on 11 April, also at NG. This was suspended by the top from three thin (*c.*5 mm) vines over a small stream, 1.5 m above ground beside a small waterfall. We found another nest on 22 March 2006 at SU, at the same location as the previous two. This contained at least one nestling and we observed two adults approach with arthropods in their bills, one of which fed the

nestlings a 1–2 cm adult lepidopteran. The nest was constructed in the root mass of an overturned tree, 3 m above a small stream. Its form was obscured by the surrounding moss and roots so that only the entrance was visible. This nest was only 1.5 m from the site of the first nest described above, which was no longer present.

All eight eggs were immaculate white. Mean ( $\pm$  SD) measurements were  $22.0 \pm 0.9$  by  $16.9 \pm 0.3$  mm. Despite the variety of situations, all nests were thick, tough mossy balls, with a downward-facing tubular entrance, and lined with pale fibres. Of the eight nests (including the inactive structure adjacent to the fifth), six were attached firmly such that the orientation of the entrance could not be moved, whilst the other two hung freely. Overall they were similar in appearance and showed similar variation in placement to previously described nests (Skutch 1967, Marín & Carrion 1994, Greeney & Nunnery 2006).

#### **LINED ANTSHRIKE** *Thamnophilus tenuepunctatus*

On 29 March 2005, at c.1,250 m at LR, we flushed a male antshrike beside the road incubating two well-developed eggs, both of which were pipped. The eggs were white with dark red blotching and narrow red and lavender flecking concentrated at the larger end. They measured 22.2 by 16.3 and 22.9 by 16.2 mm. The nest was a tightly woven cup of pale rootlets, leaf petioles and a few black fungal rhizomorphs. It was decorated on the outside with sparse moss and slung between the arms of the horizontal fork, 2.2 m above ground in a small *Acalypha* (Euphorbiaceae) shrub. The cup was slightly oblong, measuring 5 by 6 cm internally and 7.5 by 10 cm externally. It was 5 cm deep inside and 5.5 cm tall outside, with an additional 7 cm of hanging moss. When we returned on 6 April, the nest was torn down. This appears to be the first description of the nest of Lined Antshrike.

#### **OLIVE-STRIPED FLYCATCHER** *Mionectes olivaceus*

We found two nests at NG, between 31 March and 5 April 2005. Both were mossy, teardrop-shaped structures attached to thin vines which were themselves attached both above and below the nest. They were 0.4 and 1 m above the ground and both were thickly lined with pale white and buff-coloured seed down. One measured c.14 cm tall by 12 cm wide and 12 cm front to back. In addition, it had a 28-cm extension of moss above and a 14 cm tail-like curtain of moss below. The side entrance had a 3.5-cm overhang of moss and measured 4 cm wide by 3 cm tall. Inside, the chamber measured 9.5 cm tall by 5.5 cm wide, with a 3 cm-deep cup. The thin vine to which it was attached measured just 2.5 mm in diameter. We do not know the fate of one nest and at the second all three eggs hatched but the nestlings disappeared shortly after.

Both nests contained three all-white eggs which measured ( $\pm$  SD)  $19.9 \pm 0.2$  by  $15.4 \pm 0.1$  mm. The eggs were weighed to the nearest 0.001 g upon discovery and subsequently, four days later at one nest, and six days later at the second. Five eggs lost mass at a rate of  $0.94 \pm 0.16\%$  of their original mass per day. Three eggs were weighed twice after pipping had occurred, with roughly 24 h between weighings. These lost mass at a rate of  $3.0 \pm 1.0\%$  per day. One egg was pipped for at least two

days before it hatched. Using a mean 19 days of incubation for the genus (Fitzpatrick 2004), with pipping 1–2 days prior to hatch, we estimate 20–22% mass-loss for eggs during incubation.

Two nestlings weighed 2.3 and 2.2 g on the day of hatching. Newborn nestlings had pink skin with sparse silvery grey down. Their feet were dusky grey-pink and their cloacas were undifferentiated from the surrounding skin. Bills were dull yellow with bright white gapes and mouth linings similar in colour to their skin.

#### **BRIGHT-RUMPED ATTILA** *Attila spadiceus*

On 30 June 2004, outside TE, we found a nest with two addled eggs and a single newly hatched nestling. It was a bulky cup of green moss saddled on a broad beam against the side of a building, 4 m above ground. It did not appear to have a differentiated lining. The eggs were buffy orange heavily spotted and flecked, mostly at the larger end, in various shades of brown and orange. They measured 22.5 by 17.9 and 23.1 by 18.3 mm. The nestling's right tarsus measured 8.7 mm. Its skin was dark pinkish, with yellow legs and cloaca, and a bright yellow mouth lining and gape. Dorsally it was covered with fairly dense grey-brown down, which arose in clumps that were paler near their bases, giving the nestling a distinctly sun-dappled appearance as recently described for Ochraceous Attila *A. torridus* (Greeney 2006). Skutch (1971) described the species' natural history in Costa Rica, but this appears to be the first breeding record for Ecuador.

#### **GOLDEN-WINGED MANAKIN** *Masius chrysopterus*

Between 31 March and 11 April 2005, at NG, we found four active nests. Two contained two partially incubated eggs each, and the others single, undeveloped eggs. All were pale to dark olive-tan, with heavy brown blotching, usually forming a ring around the larger end. Mean ( $\pm$  SD) measurements of five eggs were  $20.8 \pm 0.8$  by  $14.5 \pm 0.4$  mm.

All nests were shallow, sparse rootlet cups, bound together and to the substrate with spider webs, and lightly decorated on the exterior and rim with pale green moss. This generally dangled below the cups forming a 'tail' which helped obscure the nest's outline. We measured three nests to the nearest 0.5 cm. The inner diameter of the cup was 5 cm in one and 4.5 cm in the others. Otherwise, cup measurements were identical, each being 2.5 cm deep inside and 6.5 cm wide by 3.5 cm tall outside. The 'tails' of moss were 9, 4, and 5 cm long, with some stray pieces dangling as far as 30, 27 and 48 cm. Mean diameter of the supporting forked branches was  $8 \pm 1$  mm, and the six 'arms' of the forks measured  $4.8 \pm 1.2$  mm. Two nests were in Rubiaceae saplings, one in a Solanaceae, and the final in an unidentified sapling. Mean nest height was  $2.2 \pm 1.9$  m, and mean overall sapling height was  $3.4 \pm 1.8$  m. Three nests were located immediately adjacent to streams, and the fourth was over 40 m from the nearest stream but was situated in a 10 m-diameter depression, roughly 3 m deep. The nests were similar to the only other described nest from Colombia (Hilty & Brown 1986), but this appears to be the first detailed description of the nest and eggs of this species.

## Additional records

The following records of breeding are presented in abbreviated format as: common name, scientific name, date and location (evidence, details). B = building; I = incubating; N = nestling; F = fledgling; CM = carrying material, but nest not seen; AN = active nest of unknown stage.

**Speckled Chachalaca** *Ortalis guttata*, 2 July 2004 TE (F); **Cobalt-winged Parakeet** *Brotogeris cyanoptera*, 17 September 2004 TE (F); **Buff-tailed Sicklebill** *Eutoxeres condamini*, 10 January 2002 TE (B, 1 m up); **Spectacled Prickletail** *Siptornis striaticollis*, 11 December 2002 SU (B); **Sharp-tailed Streamcreeper** *Lochmias nematura*, 3 December 2002 SU (F, adult fed fledgling 7-cm earthworm); **Scale-backed Antbird** *Hylophylax poecilinota*, 30 March 2005 NG (N, one nestling); **Scale-crested Pygmy-tyrant** *Lophotriccus pileatus*, 29 March 2005 NG (I, one egg); **Short-tailed Antthrush** *Chamaezza campanisoma*, 3 April 2005 NG (N, two nestlings); **Common Tody-flycatcher** *Todirostrum cinereum*, 23 February 2004, LR (N, both adults feeding); **Great Kiskadee** *Pitangus sulphuratus*, 23 November 2003 LR (B, just beginning); **Social Flycatcher** *Myiozetetes similis*, 3 October 2003 AR (N), 12 November 2003 HM (F), 17 September 2004 TE (AN), 18 September 2004 (B), 19 February 2005 LR (B); **Golden-crowned Flycatcher** *Myiodynastes chrysocephalus*, above AR at 1,750 m (N, four nestlings, one dead, 1.9 m up on cliff); **Grey-tailed Piha** *Lathria subalaris*, 13 April 2005 NG (CM); **Spotted Nightingale-thrush** *Catharus dryas*, 31 March 2005 NG (N, two nestlings); **Pale-eyed Thrush** *Platycichla leucops*, 2 April 2005 NG (N, two nestlings); **Black-billed Thrush** *Turdus ignobilis*, 23 November 2003 LR (B, 3 m up), 19 February 2005 SU (I, two eggs, 2.1 m up); **Blue-and-white Swallow** *Notiochelidon cyanoleuca*, 3 October 2003 LR (N); **Grey-breasted Wood-wren** *Henicorhina leucophrys*, 3 December 2002 SU (I, two eggs); **Bananaquit** *Coereba flaveola*, 12 November 2003 TE (B and F); **White-lored Euphonia** *Euphonia chrysopasta*, 12 November 2003 TE (B); **Blue-necked Tanager** *Tangara cyanicollis*, 12 November 2003 TE (F), 23 February 2004 LR (two pairs with F); **Yellow-bellied Tanager** *T. xanthogastra*, 12 November 2003 HM (F); **Swallow Tanager** *Tersina viridis*, 19 February 2005 LR (B); **Blue-grey Tanager** *Thraupis episcopus*, 30 March 2005 NG (B); **Silver-beaked Tanager** *Ramphocelus carbo*, 5 September 2005 AR (two B); **Lesser Seed-finch** *Oryzoborus angolensis*, LR (B, only female, 0.5 m up); **Yellow-rumped Cacique** *Cacicus cela*, 10 January 2004 TE (colony at B and I stage); **Russet-backed Oropendola** *Psarocolius angustifrons*, 12 November 2003 HM (N, adult feeding unidentified nestling bird to young), 19 February 2005 SU (colony with nests B and others N).

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